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ABSTRACT

A program of computer based instruction in early childhood education at the University of Georgia is described in this document. The author (1) identifies a research context in which computer technology can be justified in a teacher education curriculum; (2) discusses computerized cognitive testing as an initial application within early childhood teacher education curricula; (3) outlines other potential applications of computer technology to teacher education; and (4) briefly suggests a context for research developments in which computer based instruction may be compared with other media alternatives. Initially, computers were used at the University of Georgia to assess student mastery of material in a teaching methods course. This computer assisted program of instruction has been expanded to other courses. Performance on computer tests has permitted assessment of student strengths and weaknesses, immediate feedback regarding performance, and suggestions for remediation. Applications of computer assisted instruction are seen to include counseling, screening, and evaluation of competency in regard to graduation criteria. (Author/DB)

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Computer-based Instruction in Early Childhood Education at the University of Georgia: a proposed innovation

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Computer-based Instruction in Early Childhood Education at the University of Georgia: a proposed innovation

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The objectives of this paper are to

1. identify a research context in which computer technology can be justified in a curriculum for teacher education.
2. discuss computerized cognitive testing as an initial application in early childhood teacher education curriculum.
3. outline other potential applications of computer technology to teacher education.
4. suggest a context for research developments in which computer based instruction may be compared with other media alternatives.

The feasibility of various applications of computer based instruction in a preparatory curriculum for teacher educators has been documented in numerous resources. Molnar (in Hunter et. al., 1975) states "that 70 percent of the jobs which will face our children who are in elementary schools today do not currently exist" (p. 27). In delineating fourteen computer needs in emerging education, he also emphasizes the necessity of computer literacy in the emerging world of education in general and in the design of technological alternatives for teacher education curriculum.

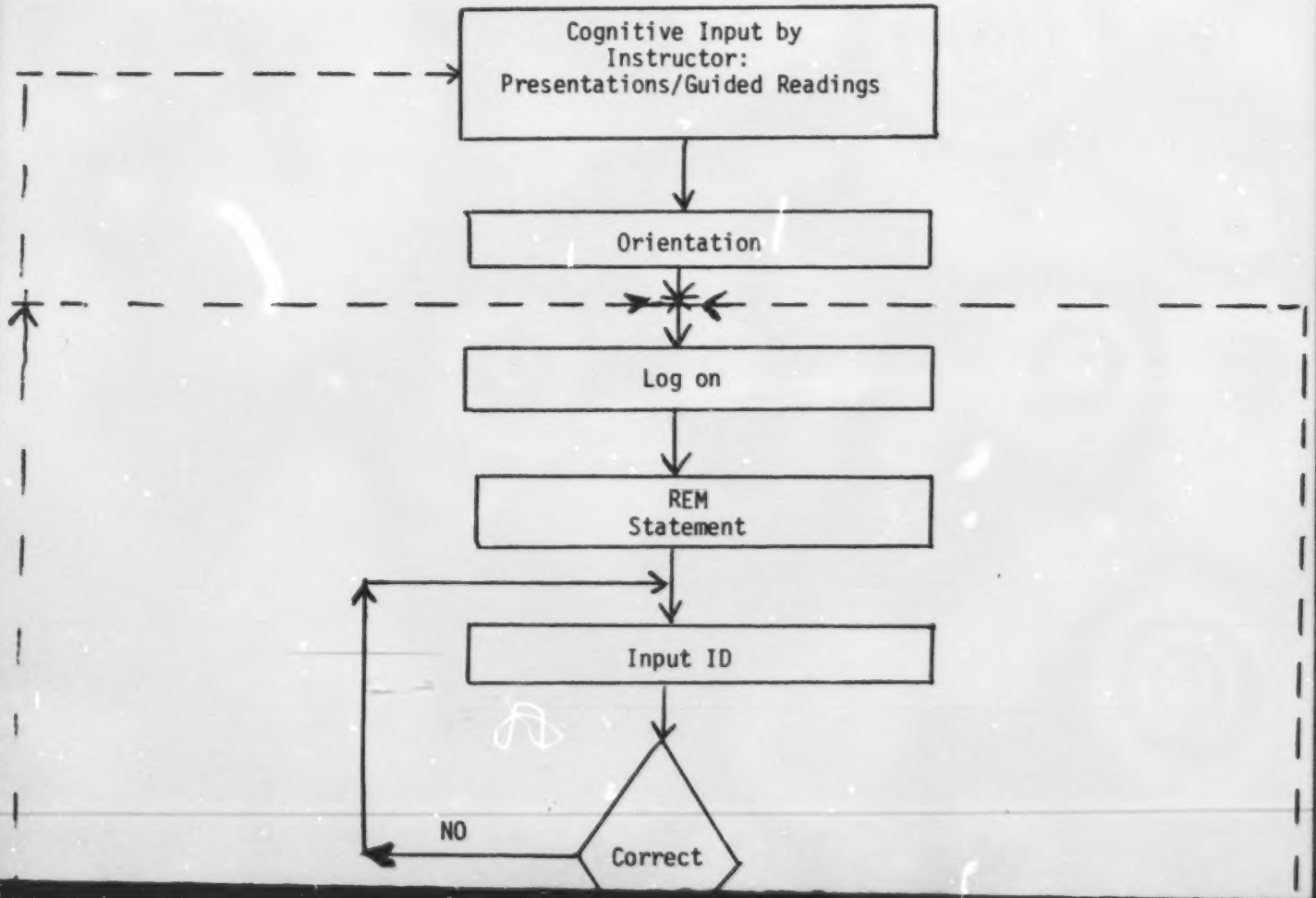
In a similar context, Hunter et. al. (1975) argue that teachers of teachers, administrators and students should have a basic knowledge of the roles which computers can serve in all areas of education. This, of

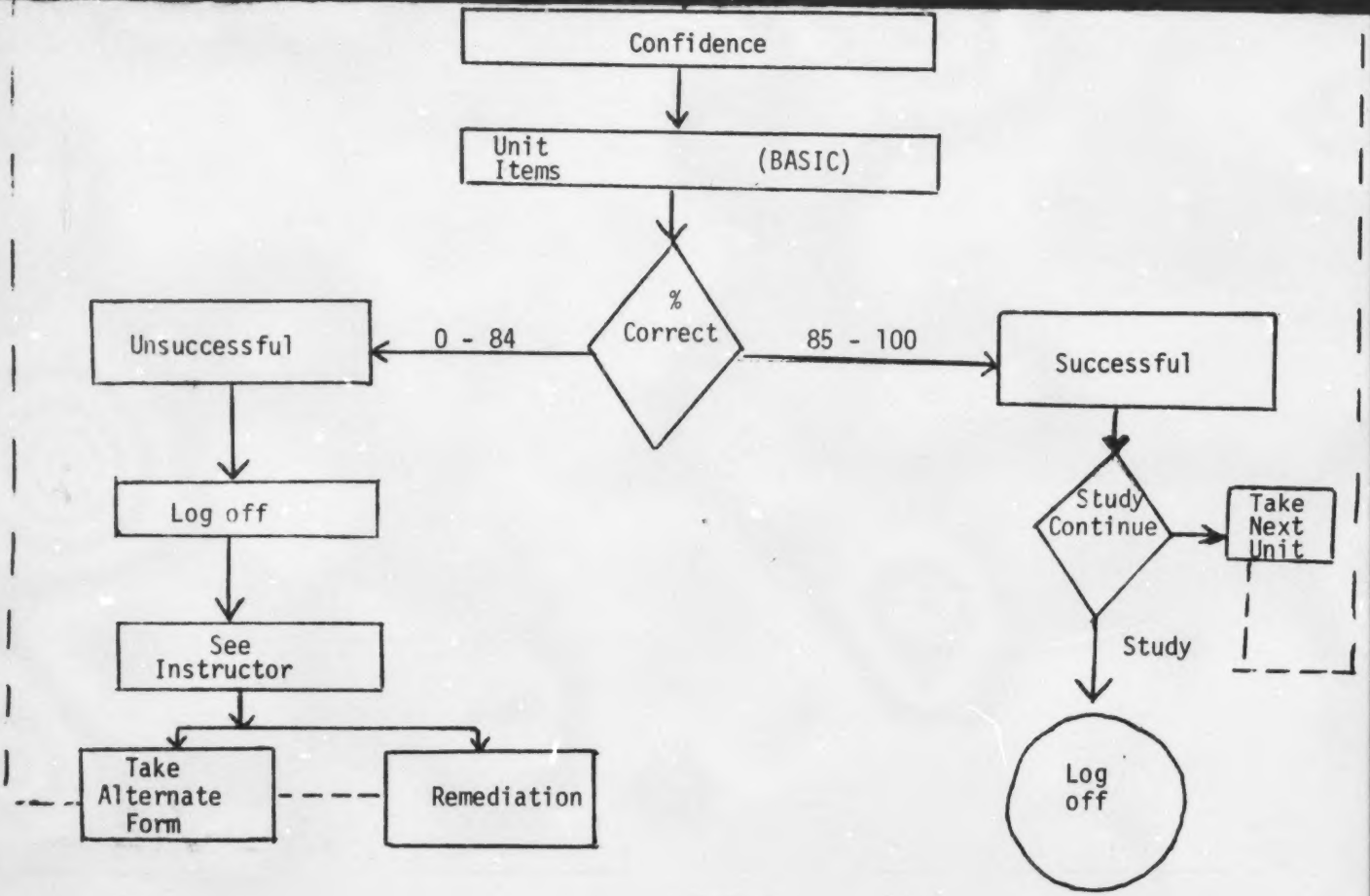
course, can be accomplished through programs of continuing education and developments which can be made possible within an academic discipline.

The idea of an initial application, of computer technology to teacher education at the University of Georgia, Division of Elementary Education was conceived by the author over one-half decade ago (Powell, 1976, 1978). In the former article, a model for implementing computer assisted instruction on the university level is presented in three phases with accompanying objectives. The latter publication, outlines 10 significant computer developments on the national-international scenes that have made reasonable progress in fields of education. These research oriented developments created a context for communicating with university administrators, teachers, and students about the significance of computer based instruction in the education of students preparing to be teacher of students in environments where computers will be used as a major technological resource for instruction and decision making.

The first step toward using computers in the instructional process for students preparing to become teachers in the Division of Elementary Education at the University of Georgia is to propose computer-based cognitive testing for students enrolled in early childhood education - ECE 302, Methods of Teaching. The author has presently written and revised 116 items covering the content of behavioral objectives, instructional planning, instructional strategies and classroom management/discipline. Over the past three years, these items were revised while utilizing the results from paper-pencil testing administered individually or in small groups after students believed that the content of a particular unit(s) had been mastered.

Figure 1
Management of Computerized Testing Program
for ECE 302




Confidence
Unit Items (BASIC)
% Correct
0 - 84
85 - 100
Unsuccessful
Successful
Log off
See Instructor
Take Alternate Form
Remediation
Study Continue
Take Next Unit
Study
Log off

Using the Beginner's All-purpose Symbolic Instruction Code (BASIC), an alternative to the conventional testing method has been programmed for the CYBER computer system at the University of Georgia. Beginning winter quarter, 1981, students enrolled in ECE 302 will have access to the program as computer terminals are made available on a scheduled basis. The management aspect of the program is illustrated in Figure 1.

As a student receives classroom instruction accompanied by media resources and guided readings, he/she may request time at a computer terminal for taking the unit tests. Orientation will then be provided individually or in small groups. The student(s) will then log on for computerized testing.

Following a remark (REM) the student will type the last four digits of his/her social security number. The computer program will check for accuracy and permit a student to log on provided his social security number is correctly typed. If the student is successful in logging on, a "confidence" statement will be presented followed by the unit items for which he has chosen. Although the administration of one unit is not necessarily a prerequisite to the other, students are advised to take the units in the order of content as outlined in paragraph above.

Criterion measure has been determined to be at least 85% correct responses for each unit. Any student has the option of taking all unit tests in one scheduled period, or he/she may sign off and schedule more time later. If a student gets less than 85% correct responses, he can be presented with an alternate form of each item or be advised for remediation which could require additional study and/or testing.

With regard to future applications of computer-based instruction, plans are being made to include classroom simulations as an integral part of the curriculum for undergraduates in the first quarter of their professional program. In addition, criterion reference testing via computer for the undergraduate and graduate programs are anticipated to be used for counseling, screening, and a method for determining whether one has mastered the skills and concepts necessary to be graduated with a degree in early childhood or middle school education.

In regard to research developments, multiple correlations of instructional media types including computer-based instruction, audio, textbook, film, etc. could be investigated in order to determine learning gains in relationship to the appropriateness of instructional alternatives for human needs.

Applications of computer technology to teacher education curriculum has long been determined to be a necessity in order to expose prospective practitioners to a technology that will be a natural asset to the instructional environment in which many classroom teachers will accept teaching position; therefore; a preparatory program which addresses this need is warranted.

This paper has focused on projected applications of computer technology to teacher education curriculum at the University of Georgia over the next several years. It is anticipated that a context will be created in which research designs and developments will make a contribution toward a better understanding as to the vital roles which computers can play in the education of future classroom teachers. The important question is -- to what extent will preparatory programs provide concrete experiences

that will open the doors to the utilization of a technology that is increasingly becoming more commonplace in the classroom environments of our public schools?

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